

WE CLAIM:

- Suh C1*
1. An APU starter system, comprising:
 - a source of pressurized air;
 - a source of jet fuel;
 - a turbine power module attached to an APU;
 - an air flow passageway joining the source of pressurized air to the turbine power module;
 - a fuel flow passageway joining the source of jet fuel to the turbine power module; and
 - 10 a separate valve assembly located in each flow passageway for controlling the flow of compressed air and jet fuel into the turbine power module.
 2. The APU starter system according to Claim 1, wherein source of compressed air comprises at least one high-pressure storage vessel.
 3. The APU starter system according to Claim 1 wherein the source of compressed air comprises a pair of high-pressure storage vessels each having an aluminum-lined composite configuration, filled with compressed air.
 4. The APU starter according to Claim 1, wherein the valve assembly located in the air flow passageway comprises a modulating air control valve and a separate regulator and shutoff valve located between the air control valve and the source of pressurized air.

5. The APU starter according to Claim 1, wherein the valve assembly located in the air flow passageway comprises a fixed orifice valve and a shutoff valve located between the fixed orifice and the source of pressurized air.
6. The APU starter according to Claim 1, wherein the valve assembly located in the fuel flow passageway comprises a modulating fuel control valve.
7. The APU starter according to Claim 1, wherein the valve assembly located in the fuel flow passageway comprises a fixed orifice valve.
8. The APU starter according to Claim 1, wherein the source of jet fuel comprises a fuel tank including an expulsion device for expelling the fuel from the tank.
9. An APU starter system, comprising:
a source of pressurized air comprising at least one storage vessel;
a source of jet fuel comprising a fuel tank;
a turbine power module attached to an APU;
an air flow passageway joining the at least one storage vessel to the turbine power module;
a fuel flow passageway joining the fuel tank to the turbine power module; and
- 5
10 a separate valve assembly located in each flow passageway for controlling the flow of compressed air and jet fuel into the turbine power module.

10. The APU starter according to Claim 9, wherein the source of compressed air comprises a pair of high-pressure storage vessels each having an aluminum-lined composite configuration, filled with compressed air.
11. The APU starter according to Claim 9, wherein the source of jet fuel comprises a fuel tank including an expulsion device for expelling the fuel from the tank.
12. The APU starter according to Claim 11, wherein the expelling device comprises a bladder-type expulsion device.
13. The APU starter according to Claim 9, wherein the valve assembly located in the air flow passageway comprises a modulating air control valve and a separate regulator and shutoff valve located between the air control valve and the source of pressurized air.
14. The APU starter according to Claim 9, wherein the valve assembly located in the air flow passageway comprises a fixed orifice valve and a shutoff valve located between the fixed orifice and the source of pressurized air.
15. The APU starter according to Claim 9, wherein the valve assembly located in the fuel flow passageway comprises a modulating fuel control valve.
16. The APU starter according to Claim 9, wherein the valve assembly located in the fuel flow passageway comprises a fixed orifice valve.

17. An APU starter system, comprising:
a source of pressurized air comprising at least one storage vessel;
a source of jet fuel comprising a fuel tank;
5 a turbine power module attached to an APU;
an air flow passageway joining the at least one storage vessel to the turbine power module;
a fuel flow passageway joining the fuel tank to the turbine power module; and
10 a modulating valve assembly located in the air flow passageway and a control valve located in the fuel flow passageway for controlling the flow of compressed air and jet fuel into the turbine power module.

18. The APU starter according to Claim 17, wherein the modulating valve assembly located in the air flow passageway comprises a modulated air control valve and a separate shutoff valve located between the modulated air control valve and the source of pressurized air.

19. The APU starter according to Claim 17, wherein the control valve comprises a fixed orifice valve located between the fuel tank and the turbine power modulator.

20. A method of starting an APU, comprising the steps of:
energizing a control valve located in an air flow system
between a source of pressurized air and a turbine power module;
energizing a control valve located in a fuel flow system
5 between a source of jet fuel and the turbine power module;
igniting the mixture of air and fuel within the turbine power
module to create a steam of hot gases; and
directing the steam of hot gases onto turbine blades for
rotating the blades to drive the APU through a gearbox.

10

Add air